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Reply to Office Action dated August 10, 2005

**REMARKS**

In the Office Action dated August 10, 2005, claims 1, 2, 8, 9, 12, 14, 15, 16, and 18 are rejected under 35 U.S.C. § 102(b). Claims 2-7, 10, 11, and 17 are rejected under 35 U.S.C. § 103(a). However, for the reasons set forth below, it is respectfully submitted that Applicants' invention as set forth in claim 1-18 includes features which are not anticipated or rendered obvious by the cited references, taken singly or in any permissible combination. Reconsideration is, therefore, respectfully requested.

It is noted that although the Examiner indicates on the Office Action Summary page that claims 1-18 are rejected, the Examiner did not specifically apply any of the cited references to claim 13.

Claims 1, 2, 8, 9, 12, 14, 15, 16, and 18 are rejected under 35 U.S.C. § 102(b). The Examiner contends that Wade discloses all of the features of Applicants' invention as set forth in claim 1, 15, and 18 as well as all claims depending respectively therefrom. However, it is again respectfully submitted that the Examiner is overlooking a feature of Applicants' invention. In claims 1, 15, and 18, Applicants' invention defines the heating means as being insert molded in contact with a thermally conductive mass or the method step of insert molding a heater means in the thermally conductive mass with a substantial portion of the heater means in contact with the mass.

The Examiner has not specifically cited any teaching in Wade which discloses the use of an insert molded heating means in contact with the thermally conductive mass. Wade discloses a water heater which includes a casing having a recess in one side which is enclosed by a plate. A heating element is enclosed within the recess. The Heating element in Wade is a strip of non-conductive material to which an electrical conductor is secured. The heating element is clearly mounted only in a closable recess in the mass and is not insert molded in the mass.

As described in Applicants' disclosure, prior art devices, such as that disclosed by Wade, mounted heating elements in bodies or thermally conductive masses by use of machining operations, such as milling, drilling, etc., to form recesses or bores for receiving the heater elements. Tool chatter in forming the bores or recesses, and manufacturing tolerances in the diameter of heater elements and the machined bore in the mass or body which requires clearance for insertion of the heater elements into the bores or recesses creates air gaps between portions of the exterior surface of the heater elements and the adjacent interior surface of the bores

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or surfaces of the bores or recesses in the thermal body. Since air acts as an insulator to heat transfer. Such air gaps cause a loss of thermal efficiency of the heat transmitted by the heater elements to the thermal mass due to the lack of direct contact of the heater elements to the thermal mass. Applicants' invention overcomes this deficiency by insert molding the heating means in the thermally conductive mass. As the molten mass is formed around the heating means which are held in a fixed position in a mold cavity, the mass contacts substantially all of the exterior surface of the heating means thereby ensuring direct contact between the heating means and the thermally conductive mass over substantially all of the exterior surface of the heating means. This ensures highly efficient heat transfer between the heating means and the thermally conductive mass.

Since Wade is devoid of any teaching of insert molding the heating means in the mass, it is respectfully submitted that Applicants' invention as set forth in claims 1, 2, 8, 9, 12, 14, 15, 16, and 18 is not anticipated by Wade.

Claims 2, 3, and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Wade in view of Cassidy. Wade is cited for the same reasons as for claim 1. However, the Examiner notes that Wade does not explicitly disclose a control means connected to the heating means and a thermally conductive medium coupled in heat transfer relationship between at least a portion of the control means and the thermally conductive mass. The Examiner cites Cassidy for teaching these features and contends that it would have been obvious to modify Wade to include these features of Cassidy.

However, it is respectfully submitted that the Examiner has not made a *prima facie* case of obviousness to support a rejection of Applicants' invention set forth in claims 2-4 based on any permissible combination of Wade and Cassidy. Any combination of the features of Cassidy noted by the Examiner with Wade results in a heating apparatus which still lacks an insert molded heating means as set forth by the Applicants in claim 1, which is included by dependency in claims 2-4.

Thus, since both Wade and Cassidy are devoid of an insert molded heating means, it is respectfully submitted that Applicants' invention as set forth in claims 2-4 patentably defines over the cited references.

Claims 5-7, 10, 11, and 17 are rejected under 35 U.S.C. § 103(a) as being obvious and unpatentable over Wade in view of Roccitelli. The Examiner cites Roccitelli for teaching control means in a thermally conductive medium disposed between at least a portion of the control means and the thermally conductive mass

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and combines these features with Wade in the same manner as in the Examiner's combination of Wade and Cassidy discussed above.

For the same reasons presented above with respect to the patentability of claims 2-4, it is respectfully submitted that the Examiner has not made a *prima facie* case of obviousness to support a rejection of claims 5-7, 10, 11, and 17 over a purported combination of Wade and Roccitelli. In Roccitelli, the PCT heater is sandwiched between two plates. Like Wade and Cassidy, Roccitelli is devoid of any insert molded heating means in the thermally conductive mass.

For these reasons, it is respectfully submitted that Applicants' invention as set forth in claims 5-7, 10, 11, and 17 patentably defines over any permissible combination of Wade and Roccitelli.

In the Office Action dated August 10, 2005, in the Response to Arguments, the Examiner found the phrase "insert molded" to be a method of forming a device. The Examiner also noted that the method of forming a device is not germane to the issue of patentability. It is respectfully submitted that this rejection is unsupportable with respect to either the apparatus claims, claims 1-14, or the method claims, claims 15-18.

Concerning the apparatus claims 1-14, it is respectfully submitted that the Examiner applied an incorrect rule with respect to product claims which include process steps. The Examiner should instead apply the rule regarding this type of claim as stated in the case of In re Luck. In re Luck, 476 F.2d 650, 177 USPQ 523 (CCPA 1973). In Luck, the Court held that "it is well established that product claims may include process steps to wholly or partially define the claimed product," Id., at 653. The Court additionally held that "[t]o the extent these process limitations distinguish the *product* over the prior art, they must be given the same consideration as traditional product characteristics." Id. (Emphasis in original).

The process step of insert molding (i.e. "insert molded") in claims 1-14 is a process limitation which distinguishes the product over the prior art. Thus, the Examiner should apply the rule as stated above in Luck and give the limitation of "insert molded" the same consideration as a traditional product characteristic. Therefore, it is respectfully submitted that that Applicants' invention as set forth in claims 1-14 patentably defines over the cited references.

Concerning the method claims, claims 15-18, it is respectfully submitted that the Examiner's statement that insert molded refers to a method and that the method of forming a device is not germane to the issue of patentability is

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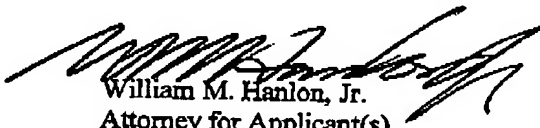
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incorrect. Claims 15-18 are method claims, and thus, the method step of "insert molding" as contained therein is germane to the issue of patentability. Further, none of the referenced cited by the Examiner disclose insert molding a heater means in a thermally conductive mass. Therefore, it is respectfully submitted that that Applicants' invention as set forth in claims 15-18 patentably defines over the cited references.

In summary, for the reasons set forth above, it is respectfully submitted that Applicants' invention set forth in claims 1-18 includes features which are not anticipated or rendered obvious by the cited references, taken singly or in any permissible combination. Allowance of claims 1-18 is submitted to be warranted and is respectfully requested.

Respectfully submitted,

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